CLAIMS

1. Apparatus designed to examine a surface (9), comprising a polarization analyser element or analyser (14) placed in the path of a light beam (17) reflected by the said surface, characterized in that it comprises a means for taking digital images (13) placed in the path of the beam reflected by the said surface downstream of the analyser, and a processing unit (15) capable of calculating the brightness and the intensity of a plurality of points of the said surface from pixels of at least two images of the said surface.

2. Apparatus according to Claim 1, characterized in that it comprises a source of polarized light capable of emitting a beam (16) incident on the said surface to be examined.

3. Apparatus according to Claim 2, characterized in that the light emanating from the said source is substantially isotropic.

4. Apparatus according to Claim 2 or 3, characterized in that the light emanating from the said source is substantially white.

5. Apparatus according to Claim 2 or 3, characterized in that the spectrum of the light emanating from the said source is substantially the same as the solar spectrum.

6. Apparatus according to any one of the preceding claims, characterized in that the analyser comprises a means for transmitting the crossed polarization and a means for transmitting the parallel

polarization, the said transmission means being alternatively active

7.   Apparatus according to Claim 6, characterized in that the analyser is rotating.

8.   Apparatus according to Claim 6, characterized in that the analyser comprises an electrical switching means.

9.   Process for the remote examination of a surface, in which the polarization of a light beam reflected by the said surface is analysed, digital images of particular polarizations of the said reflected beam are taken, and the brightness and the intensity of a plurality of points of the said surface are calculated from pixels of at least two images of the said surface.

10. Process according to Claim 9, in which the said surface is uneven.

11. Process according to Claim 9 or 10, in which monochromatic digital images are taken.

12. Process according to Claim 9 or 10, in which polychromic digital images are taken.

13. Computer program comprising program code means to implement the steps of the process according to any one of Claims 9 to 12, when the said program runs on a computer.

14. Storage medium that can be read by a device for reading program code means which are stored thereon and which are capable of implementing the steps of

the process according to any one of the Claims 9 to 12, when the said program runs on a computer.